

Nine IT luminaries share the advice they'd give to the next administration.

COMPUTERWORLD



Inside

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News Analysis Sprint's Xohm mobile Wildex network may not have a big enough reach to grab big

Afferosoft has been a eleoping glant on closel computing for corporate seers. But It's waking up. PAGE 1

THE ORBIL: In those tough times, Capita One's CIO is striving to beest officiency and ease customer auxisting, page to

Opinion

Will your vote on temorrow? Electi technologies rain doubte, PAGE 21

Security

A close feet reveals virtualization's floure PAGE 36

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COMPUTERWORLD III NOVEMBER 3, 2006

MEWS DIGEST

6 Microsoft execs demonstrate

Windows 7 and you that the vendor won't repeat the mistakes it made with Vista. [NetApp cancel its first-ever user conference because of the seconomic elima

7 Online retailer Overstock.com is restating its financial results for a five-and-a-half-year period because of internal misstops on an Oracle ERP implementa-



6 Insurer Nationwide is using virtualization software to reduce the rumber of vRR servers in its data center from 5 000 to 2 500

III NEWS ANALYSIS

10 Mobile William May Not Make Corporate Connection Sprint Nextel has launched its Xohm mobile WiMax network in Baltimore as part of a planned national rollout. Rut WiMax technology has some Imitations that could dampen (IT's enthusiasm for Sorint's network.

14 Microsoft Takes Two Big Leaps into the Cloud, Looking to jump-start its cloud computing efforts before Amazon and Google get too far ahead. Microsoft readies a cloudfriendly version of Windows and Webbased versions of key Office apps.

DEPARTMENTS

18 The Grill: Capital One ClO Rob Alexander talks short ession rustomers' arrojeties, taking a conservative approach to finance and using IT to boost efficiency in tough times.



38 Security Manager's Journal: Betting It All Virtually Right. IT's implementation of virtualization was flawed, but Mathias Thurman finds that the worst problems can be remediated.

43 Shark Tank: Smelling like garbage all day is a small price to pay for saving your employer \$35,000.

E OPINION 4 Editor's Note: Don Tennant

worries that in five years, the IT profession as you know it will no longer exist.

21 Sharon Machlis isn't optimistic about how well voting technology will work on Election Day.

40 Paul Glon notes that good times can lead to delusional thinking. but so can bad times. Drop the fantasies and get real

44 Frankly Speaking: Frank Hayes suggests 10 things you should do if your IT budget gets cut.

III ALSO IN THIS ISSUE



Stormy Weather

The ascent into cloud computing could be more turbulent than you expect. Here are seven unsettled areas where current and



30 Dear

Mr. President As a decade-long slump in federal R&D funding continues, we asked nine IT lumi naries to tell us what advice they'd give the next administration about tech-related



Microsoft



SOL Server

Don Tennant

What, Me Worry?

'M CERTAINLY not one to seek the spotlight, but perhaps you'd be interested in knowing what Jerry Seinfeld, Ellen DeGeneres, Dane Cook, Tracy Morgan, Joan Rivers and I have in common. Besides the fact that we're all incredibly funny, talented, entertaining people. I mean.

If you must know, the answer is that by the end of this month, we all will have been recent headliners at Caesars Palace

in Las Vegas. I know
— pretty impressive stuff.
The only difference is that
while those other guys will
have appeared in the part
of the venue they call the
Colosseum. I headlined
on a makeshift stage in a
nondescript room in the
hotel's conference center.
But I see no reason to get
booseed down in details.

bogged down in details.
I'm proud to say I was
the keynote speaker at last
month's annual conference
of I'T executives from the
property and casualty insurance industry, the event
widely known as the PCI
Information Technology
Conference. Don't laugh.
It's a big deat

I spoke about the miracles that have occurred in the IT realm over the course of the 18 years I've been a journalist, and when I was finished, I said I'd be happy to take a

few questions.

"What's the next miracle?" asked an earnest
audience member who

apparently assumed that I have far more insight than I really do. I could tell I had the same look on my face that Sarah Palin had on hers when Charles Gibson asked her about the Bush Doctrine.

"I have no idea," I finally said. "It's whatever you guys in this profession do that we end up reporting on." If there were any groans, they weren't audible, so I moved on.

The next questioner

appeared to be looking for some balance to the shamelessly upbeat thrust of my presentation. "What do you really worry about?" he asked. It was an intriguing

re was an intriguing question. Even though I'm not a worrier by nature, there was no awkward pause this time. I knew exactly what worried me

III I'm worried that you don't realize that five years from now, the IT profession as you know it will no longer exist. about the people gathered in that room.

"I worry that you guys don't recognize how fast this profession is changing." I said. "I'm worried that you don't realize that five years from now, the IT profession as you know it will no longer exist,

IT profession as you know it will no longer exist, and that you're not doing enough to prepare yourselves for that." I went on to explain that I wasn't referring to the tired "IT doesn't matter" or "IT is dead" rant. What I meant was that in 2014.

I meant was that in 2014, IT will no longer exist as the stand-alone sphere of activity it tends to be today. What I didn't want was for anyone in that room to find himself five years from now looking back and thinking, "If only I'd known."

That is, "If only I'd known that by now IT would no longer exist as a distinct discipline in the sense that finance and marketing and sales are distinct disciplines." Unquestionably, in 2014 there will still be people whose expertise lies chiefly in the information systems



that support the business. But they will be fully integrated into finance and marketing and sales and all the other departments in an enterprise.

claiming that I'm spoutling anything new here. Last year, for example, Forrester Research was already telling its clients that Tover the next five years business will become so deeply embodied in technology, and the technology so deeply embedded in the business, that IT will need to be managed quite dif-

ferently."
Forrester calls this new state — which it said is emerging from and being built on what's now known as IT — "business technology." BT, it explained, is "pervasive technology

is "pervasive technology use that boosts business results."

So no, it's nothing new. But I wonder how many IT professionals are really taking all this seriously and are adjusting their career paths and their companies' organizational structures accordingly. This isn't one of those things that can be laughed off. There's just nothing funny or entertaining about obsolescence. Don Tonnant is editorial director of Computerworld and InfoWorld Contact him at don_tennant@ computerworld.com, and visit his blog at http://

blogs.computerworld.com/

tennant.

True Happiness and Asperger's Syndrome

In Don Tennant's three Editor's Notes about Asperger's syndrome. he asserts that happiness would be better achieved by looking outward instead of inward. This assertion seems to have the backing of science - specifically neurogenesis. Elizabeth Gould, a professor of psychology at Princeton, has found that various primates regenerate brain cells (previously thought impossible), but only if they are not cased in a dull, sterile environment. They have to be in a stimulating environment. I think there is a correlation between generating new brain cells and happiness; otherwise, we just lose them and begin to decay mentally. I would also think outwardlooking activities like interacting with other people are probably more stimulating than being alone

Bob Dombrocki, principal consultant. Sanofi-Aventis, Malvern. Pa.

In his Oct. 6 Editor's Note. "Asperger's Oxymoron," Tennant states, "A fundamental prerequisite to doing something important with your life and making the world a better place is forming bonds and building

relationships with other people." I subscribe to the theory that we are all unique and thus we all are not necessarily required to have these bonds. After a lot of years. I have concluded that I am a loner. I have tried to form bonds and been moderately successful, but basically I am happiest when I am alone. I read a lot, listen to music and go see movies. I am excellent at my job. problem-solving, and I really enjoy what I do. I have been in IT since 1976 and always enjoy learning something new.

I believe I have made the world a better place, in spite of my preference for solitude, through the solutions I have developed. Everyone I come into contact with appreciates my value as a problem-solver and a facilitator. I currently am an administrator for a couple of applications. and I work well with users. After work, however, I do not like to socialize with my co-workers. I do it when I can limit the time, and since the location is usually far from where I live. I have a handy excuse.

Roolla Davis, senior systems analyst, Illinois

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FCTION

he 10 Best Features in findows 7 for IT Pros

Too Old for Tech? Not pose Silicon Valley CEOs pto Silicon Valley's industrien with is, a few servy CEOs have stayed in a late their 80s – to the great based



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III FOITONIAL

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News Digest

THE WEEK AHEAD

MONDAY: SaaS vendor Salesforce.com begins its annual user conference in San Francisco.

TUESDAY: E-voting systems will again be put to the test as voters cast their ballots in the presidential election.

WEDNESDAY: Microsoft's Windows Hardware Engineering Conference opens in Los Angeles (see related story below). WEDNESDAY: Cisco plans to report its 01 (mancial results



ODEDATING SYSTEMS

Microsoft: Windows 7 Will Fix, Avoid Vista Mistakes

ICROSOFT
Corp. last week
publicly demonstrated Windows 7 for the first time, and
company executives said
that the planned operating
system upgrade will reflect
lessons learned from the
rollout of Windows Vista.

In a speech at Microsoft's Professional Developers Conference in Los Angeles, Windows development chief Steven Sinofsky said that some of the criticism targeted at the vendor over Vista was deserved.

Sinofsky acknowledged that Microsoft hadn't fully prepared its business partners for Vista's release, which resulted in incompatible applications and a lack of hardware drivers. It won't repeat that mistake with Windows 7, he said.

Windows 7, he said.
Microsoft also plans to
modify its User Account
Control security feature in
Windows 7 so the tool is less
disruptive than it is in Vista.
Sinofsky said the company
went a little too far with
UAC* in Vista, which can
hit even authorized users
with frequent pop-up windows containing security
promots and notices.

In an interview, Mike Nash, corporate vice president of Windows product management, said that Microsoft also won't make mato-changes to Windows 7 late in the development

cycle, as it did with Vista. "We're very disciplined «Windows T's Libraries tool will aggregate similar files for users. this tome. Yash said. In fact, as o-called pre-beta build of Windows 7 that was given to PDC attendees and will be handed out at this week's Windows Hardware Engineering Conference "is a feature-complete version" of the operatins system he said.

Windows 7 will include new features such as a touchscreen interface and a tool called Libraries that's designed to offer a streamlined

view of files and folders.
But in an effort to avoid
Vista-like bloat, most of
the planned improvements
are refinements of features
in that operating system.
And Microsoft is removing
some bundled applications
and making them optional
downloads, although Nash
sald that Windows 7 won't
be any slimmer than Vista is

from a megabyte standpoint. Public beta-testing of Windows 7 is due to start early next year, and the OS could be released to business users in late 2009. Asked if he expects users

Asked in the expects users to put off Vista upgrades and wait for Windows 7, Nash said Microsoft made "a lot of measurable progress" in Vista Service Pack 1. But, he added, "customers are going to make their own decisions."

Eric Lai, with
 Elizabeth Montalbano
 of the IDG News Service



SOFTWARE

Overstock's ERP Woes Force It to Restate Results

ITING problems with an Oracle ERP implementation. Internet retailer Overstock.com Inc. last week announced that it is restating its financial results for a five-and-a-halfyear period.

The company blamed itself, not Oracle Corp., for the problems. Oracle declined to comment.

Our first commandment is 'maintain a bulletproof balance sheet,' but while the spirit is strong, the flesh made a mistake." Overstock CEO Patrick Byrne said in an Oct. 24 letter to shareholders.

He said Overstock personnel made mistakes during the installation of the Oracle ERP software. "We didn't hook up some of the accounting wiring" and then tried to fix the problems manually. Byrne said. "We've since found that these manual fixes missed a few of the unhooked wires."

The FRP errors forced

the company to restate its earnings from 2003 through the second quarter of this year, Byrne said. The company cut its reported \$3.5 billion in revenue over the period by \$12.9 million and boosted its reported

We weren't recordina some customer refunds, and we weren't recouning some costs from partners on some returns. The combined result was that our returns costs looked

reasonable

\$184.7 million net loss by \$10.3 million, he added. Kevin Moon, director of investor relations at Salt Lake City-based Overstock. said the company rushed to launch the Oracle ERP software before the Christmas shopping season in 2005

"Honestly, it didn't have anything to do with Oracle per ser it was the implementation," he said. "We had consultants and we had beln, but it was all driven by Overstock."

In a letter to shareholders David Chidester senior vice president of finance. said the problems during what he called "a major system upgrade" included mistakes in Overstock's process of accounting for customer refunds and or-

der cancellations. Once the problems were discovered Overstock "reexamined (its) procedures for testing and verification of the balance sheet (and) put into place processes to record all refunds in our financial system," he said.

Ray Wang, an analyst at Forrester Research Inc., said that such ERP problems can be avoided with adequate internal planning and design efforts.

"The ERP system will do what you design it to do," Wang added, "which is why we often say it's very important to spend time on design and mapping." - Chris Kano

IDG News service

Short Takes

SECURITY

Sysadmin Sentenced for Attack on Firm's Servers

last week was pertenced to six hs in prison for substaning three servers at his for

Privavrat Patel had pleaded in federal court in Jam y to issociding out the server the long Thereingliving nd last year, or

former employer, Pratt-Re Corp., a 200-year-old tool maker in Shelton, Coon. Patel has separately a

att-Read. The com fired him about a m dent, ending his o year stint as a centract o



ters said that Patel acthe Pratt-Read servers from one after be "had a few drinks." According to the plea agreement, he deleted critical ed by the servers d database and ad

rding to court fill out the deleted operar system fries, the servers cou do nothing when restarted, except print an error message Patel's attorney argued that

ad operations for two wee forcing the company to use pa per records for a portion of ti

go during repairs.

IDS NEWS SERVICE

Nationwide Aims to Cut its Server Count in Half

THE PERSON NAMED IN COURT

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Version reducing its need for additional floor space ind electrical power No and off a planned data center and a second or times years.

Dis before Nationwide's In Raff can nove in appli-" lass to sell the concept to Misso, vice president of

Migga senses a broader unlashing concern, "They feel but they have more control. 8 - itd last week.

ers that there are "all kinds of full-safes," Miggo said. For in Tance, Nationwide is asing VMware's VMotton thel to quickly move virtual a whites to new servers as needed. And in an effort to parther speed up that proc

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Intel Investing \$170M in China

- CFO Paul Otelline announced at a press briefing here last week that intel Coro is investing \$170 million (U.S.) in projects and companies in China.

Otellini said the company is investing \$150 million in 67 projects around China, including joint efforts with Lenovo Group, Haier Group, Neusoft Group and Tsinghua University.

Intel didn't elaborate on the plans, except to say that they would "support the advancement of China's (T ecosystem

and homegrown innovation. The company added that " its Intel Capital unit will invest \$20 million in three Chinese

BENCHMARKS LAST WEEK

Following drop-offs in their stock prices, Brocade Com-munications Systems Inc. nd Foundry Networks Inc. reed to reduce the price of rocade's propo of Foundry from \$3 bil

Also because of the economy, Motorola Inc.'s spin-off of its cell phone unit, originally planned for next year's 03, has been postponed. FIVE YEARS AGO: Hewlett

Packard Co. stopped selling its HP e3000 midrange systems, which debuted in 1972 (without the "e") and were one of the industry's too

companies - NP Holdings, Trony Solar and ViewHigh Technologies - that are working on clean technology projects.

IDG New Service CSC Expanding Chinese Operations

Sciences Corp. (CSC) last week said that it has started building a new (T services de-

livery center here The Falls Church Va shared services firm didn't disclose the size of the new IT center but it did say that construction is slated to be completed

in mid-2010, Operations will begin next spring with 200 employees working at a temporary location. CSC expects to employ 500 people at the new facility

within three years. The data center will provide

application development. maintenance and help desk

services, the company said. 110to Nove Service

IBM has signed a one-year. S70 million Australian (\$47 million U.S.) extension to its contract to provide supnort services to Medicare Australia, the country's universal health insurance program, IBM provides call center support and supports the agency's data warehouse and its desktop, midrange and mainframe systems.

Computerwork! Austraha



PROPONENTS

VIDTUAL IZATION

Nationwide Aims to Cut Its Server Count in Half

ATIONWIDE Mutual Insurance Co. says it's on track to reduce its physical count of v86 servers from shout \$ 000 machines several years ago to 2,500, via the use of VMware

Inc's virtualization software.

The Columbus. Ohio-based insurer estimates that it has saved a total of \$2.2 million in serve er hardware costs since launching the consolidation effort. Its average ratio of virtual systems per physical server is 13-to-L and some boxes are hosting as many as 20 virtual machines.

And by reducing its need for additional floor space and electrical power. Nationwide has been able to put off a planned data center expansion for three years.

But before Nationwide's IT staff can move an application to a virtual system. it has to sell the concept to business users, said Scott Miggo, vice president of infrastructure engineering at Nationwide Services Co., the insurer's IT arm.

The users often raise technical questions, but Miggo senses a broader underlying concern, "They feel that they have more control [of physical servers]," he said last week

IT tries to assure the users that there are "all kinds of fail-safes," Miggo said. For instance, Nationwide is using VMware's VMotion tool to quickly move virtual machines to new servers as needed. And in an effort to further speed up that process, the company is working with VMware to create a "migration factory" tool set. he said.

Miggo said be would also be interested in working on a cloud computing proof-ofconcept project. But he

isn't convinced that provid-

ers of cloud services can deliver the round-the-clock reliability required by production applications. "I'm not too sure anybody can

tell me that" he added - Patrick Thibodeau

BETWEEN THE LINES



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170M in China

- CEO Paul Otelli oed at a press briefs at week that intel Co

CSC Expanding inese Operati es Corp. (CSC)

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Mobile WiMax May Not Make Corporate **Connections**

Sprint Nextel's Xohm network is live in one city and being rolled out in more. But WiMax technology has enterprise limitations. By Matt Hamblen

AN MOBILE WIMAX work for business users who are looking for high-speed wireless Internet access? Sprint Nextel Corp. and financial backers that include Intel Corp. and Google Inc. think it can.

"We're definitely targeting businesses," said Barry West, president of Sprint's Xohm unit, which launched its namesake network in Baltimore in late September and plans to expand the WiMax offering to five mor cities by early next year.

Even though the eventual nationwide rollout of Xohm is just starting. West said it's possible to make a compelling case for business uses of the network, particularly at small and midsize companies. He claimed that 70% of business activities are conducted within 50 miles of workers' homes - a statistic that should make a fast citywide network like Xohm

look appealing, he said. But Xohm and WiMax in general have some obvious limitations, according to wireless technology analysts. The biggest one, for now, is that the Sprint network is operational in only one city. Large companies likely wouldn't want to support laptop PCs and handheld devices on a network like Xohm unless it's run-

ning in numerous locales. Another issue is how far Xohm can reach within cities, and whether the socalled fourth-generation wireless technology can provide users with consistently good service. Even in Baltimore, about 30% of the 300 antennas that Sprint plans to install still weren't in place as of early October (see related story, page 12).

To belp ensure full coverge for Xohm users, Sprint is working with hardware manufacturers to make available by year's end a laptop USB modem or aircard that can switch between the WiMax service and existing 3G wireless networks. Analysts such as Gartner Inc.'s Phillip Redman said it will be hard to know how truly mobile Xohm users can be until that gear is tested.

In addition, some analysts simply aren't convinced that there will be much demand for WiMax's high-speed mobile capabilities among business users, "There's a legitimate question whether this is mobile broadband for

soccer moms," Redman said. At least one company has started using the Xohm network in Baltimore. National

Continued on page 12



When your company is on one network, it can be truly flexible

Continued from page 10 Imaging Systems Inc., which sells Hewlett-Packard printers and printing supplies. has connected seven laptops and desktop PCs to the Sprint network via a single WiMax modem from ZvXei Communications Corp.

National Imaging has 17 employees and is based in a warehouse and office park in Gien Burnie, Md., about eight miles south of downtown Baltimore. Richard Levy, the company's CEO, said the office park isn't served by cable or DSL networks so WiMay was a welcome alternative to the T1 line that National Imaging had been relying on for all of its voice, data and video

tranemiecione "When I read about WiMay coming I was on the phone right away ordering it," Levy said. The Tl service wasn't sufficient especially when workers started making phone calls at the same time, he noted. So now National Imaging uses WiMax for data and video, leaving the TI to handle only its voice cails.

Part of Levy's plan is to use Xohm along with Skype to support live videoconferencing between customers and the company's technicians on repair calls, "If you can show the customer what you want to do, it makes it a lot easier," he said.

FASTER IS BETTER

Thus far, Levy said, the WiMax service is working satisfactorily, even when the downlink speed is just above the minimum level of 2Mbit/sec. that Sprint promises users. But, he added. if transmission speeds increase as the Baltimore network is built out, "that would be even better." Wasif Malik, director of

Xohm Demos Show Ups. Downs on Speed

SPRINT demonstrated its Xohm WiMax network in Baltimore on Oct. 8, running speed tests on laptops and other devices during bus rides through neighbo hoods of midrise buildings and during water-taxi trios across the city's Inner Harbor. Downlink speeds typically topped 3Mbit/sec.

Sprint is advertising average downlink rates of Mbit/sec. to 4Mbit/sec. In the tests onboard the water taxi, though, the speeds sometimes fell below the bottom end of that range. Sorint and Intel engineers said the lower throughput was due to the fact that various types of radio signais can interfere with one another while traveling

over water. Raltimore was chosen as the first city for Xohm partly to give the network's engineers a chance to overcom the transmission challenges of a waterfront location. said Barry West, president

of Sprint's Xohm unit. Gaps in the Willax service are another concern for early users in Baltimore. The network was only about 70% finished as of Oct. 8, West said, although he added that Sprint was working

to close the coverage gaps. In addition, transmission speeds could be affected as the number of Xohm users increases. But Sprint's usage policy says that the vendor may limit bandwidtl for some applications, including file sharing, in order to ensure a "high-quality experience" for all users.

- MATT HAMBLEN

for Xohm to be launched in Chicago and Washington by year's end and in Boston Philadelphia and Dalias-Fort Worth in 2009

Inevitably, there will be questions about how solid the new Clearwire's financial footing is. But Sprint and Clearwire officials insist that users have nothing to worry about on that front. pointing to the \$3.2 billion in funding that the joint venture is getting from Google. Intel and three cabie companies. That will cover nearly half of the projected \$7 billion cost of expanding the

Xohm network to 100 cities by the end of 2010. Another possible roadblock for WiMax, though, is competition with the rival Long Term Evolution wireiess technology, LTE networks aren't expected to be deployed until 2011 at the earliest, but that technology is the upgrade path of choice for mobile network operators that support the dominant GSM standard.

In a recent white paper, Forrester Research Inc. said WiMax could eventually be used to augment existing broadband connections for example, to extend Wi-Fi signals or even wired LANs to spots within a building or office campus that couldn't he reached otherwise WiMax could also be more cost-efficient than other celiular technologies, because it can support more users within the range of a single

But for now, Xohm's lack of reach is a big turnoff for corporate users. Forrester analyst Lisa Pierce said via e-mail. "Until significantly greater service availability exists," she wrote, "WiMax won't be anything more than a trial [technology] or curiosity to enterprises."

antenna, Forrester said.

mobile solutions at the Ohio State University Medical Center, said that like many other IT managers, he's itching for a faster wireless network to meet the needs of bandwidth-hungry end users. Malik supports hundreds of medical residents and students who use iPhones or other handhelds and require voice-calling capabilities as well as the ability to access online medical references and other data on the Web. "It's crucial to us to have a faster network." Malik said. "WiMax is interesting, and I'm interested in testing it."

The medical center's network administrators would probably insist on having users convert to a Wi-Fi network inside the hospital grounds, he said. But when users are off the property, a high-speed technology like WiMax could be helpful. WiMax, which is based on the IFFF 802 life standard, looks to be "much more secure" than Wi-Fi is, said Jorge Mata, CIO for the

Los Angeies Community College District. Mata also thinks WiMax could provide a larger area of coverage with less infrastructure than broadband wireless technologies require now The only drawback, he said. is that Xohm's availability is so limited at the moment.

Sprint's Xohm unit is being folded into a joint venture with wireless ISP Clearwire Corp. to continue the network's deployment. The new company, which will be called Clearwire, is scheduled to be in place this quarter. Rollout plans call

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Microsoft Takes Two Big Leaps Into the Cloud

The software vendor has been something of a sleeping giant on cloud computing. But it's waking up. By Elizabeth Montalbano and Eric Lai

INDOWS 7 made its public debut at Microsoft Corp.'s Professional Developers Conference in Los Angeles last week. But it had to share the spotlight with two other technologies, both aimed at jump-starting Microsoft's cloud computing efforts.

The company opened the PDC by detailing Windows Azure, a cloud computing

version of its operating system that will underlie an application hosting service designed to compete with Amazon.com Inc.'s Elastic Compute Cloud (EC2).

Microsoft also said it's developing a set of applications called Office Web that has lightweight versions of Word. Excel. PowerPoint and One-Note for use in Web browsers. That move is meant to help it fend off competition

from Google Docs and other suites of online apps.

"This is the big fish jumping into the pond," IDC analyst Melissa Webster said about Office Web - a comment that just as easily

could have applied to Azure. Microsoft isn't entirely new to cloud computing. For example, it currently offers Web-based services such as Windows Live and Office Live (described as an "online extension" of Office) to indi-

viduals and small businesses. But Windows Azure is being pitched as a platform for moving corporate applications into the cloud. And Amazon has gotten a long head start with FC2.

Ray Ozzie, Microsoft's chief software architect said that work on Azure began two years ago, just before Amazon launched EC2 in beta mode. Amazon removed the "beta" tag on Oct. 23 and said EC2 was ready for production use. Microsoft, which released a preview version of Azure to PDC attendees, isn't saving

when its service will go live. Ozzie tipped his hat to Amazon for being first. But he said that Microsoft has somewhat broader and different objectives" in developing Azure than Amazon did with EC2. Microsoft has to continue supporting its global network of software developers, Ozzie noted, adding that they will be able to use the company's .Net tools to

build applications for Azure. Nonetheless, cloud computing will require changes in IT departments, Red-Monk analyst James Governor jokingly compared the cloud approach to "wearing your underpants on the outside of your clothes."

Developers, he said, have to expose applications to end users via the Web while still focusing on things such as security and scalability behind the scenes. "This externalization and rethinking the role of IT - it's something that all enterprise organizations are going to

have to face," Governor said. Pitney Bowes Management Services Inc., which handles tasks such as mailing and shipping for corporate clients, is working with Microsoft to test an Azure version of an application for digitizing paper mail.

Terry Doeberl, director of business development at the Pitney Bowes Inc. unit, said one benefit of the cloud model is that it separates applications from the operating system layer, freeing IT from having to update apps on individual PCs

The same will apply to Office Web, which Microsoft plans to release late next year with the next version of the full Office suite. The Office Web apps

won't have all the features of their desktop siblings. said Chris Caposella, senio vice president of Microsoft's business division. And Office 2007's Ribbon user interface won't be included because it takes up too much screen space. Instead. Microsoft plans to modify the drop-down menus from earlier versions of Office.

IDC's Webster said it's imossible at this point to gauge how Office Web will do com pared with Google Docs and other online suites. "But with something like 97% of the [desktop applications] market," she wrote in an e-mail,

"Microsoft is certainly the very strong incumbent." To maintain that wide of a lead, though, Microsoft

will have to show that it can keep its head in the cloud. hano writes for the IDG News Service.

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M THE GRILL

Rob Alexander

Capital One's CIO talks about taking a conservative approach to **finance**, easing **customer anxieties** and using IT to boost **efficiency** in tough times.

Dossier

Name: Nob Alexander
Title: CIO and executive vice

president Organization: Capital One

Location: McLean, Va.

Most memorable job: "I was a Cobol programmer in the Pentagen for a summer job. My claim to fame was I wrote a program that brought down their main logistics system, and the colonel who ran the organization had to go brief the general on what happened."

general on what happened." Favorite food: "My wife's spaghetti."

in high school, he was: "Transiont. My dad was in the military, so we fived all over the U.S. It wasn't great socially, but it created a lot of my self-reliance, independence and recilience."

Most interesting thing people don't know about him: "I can still hold my own with my 14-year-old on Xbox 360."

Philosophy in a nutshell:
"It's our job as landers to do
everything we can to made
members of a team successful
to help break down barriers,
to make decisions quickly, to
develop and coach them as
they can reach their thin potential. Too often, leaders think
about themselves."

Rob Alexander is the head of customer enterprise management at Capital One and is responsible for overseeing all of the financial services firm's technology activities, including an aggressive push to develop new online service capabilities.

How has the current financial cricle affected year business? Obviously, it's a challenging time for financial services firms. Lending companies in this kind of environment tend to be fairly cautious. That's the right approach, but we also want to position ourselves for the

turnaround so we're able to be competitive as we start to come out of this cycle. From a customer perspective, we see Continued on page 20

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mlpa





Continued from page 18 a real need to make sure we're delivering the best possible customer experience through a very stressful time. We continue to invest heavily in technology for the branch customer experience. our phone call-center customer experience and around the online channel

efficiently as possible.

Customers are stressed, and we want to be able to meet their needs as efficiently as possible — to help customers manage their finances online so they're better able to weather that storm. We continue to see technology as a way to drive more efficiency in how we operate as a company.

Have the past few years taught you any lessons? We've always had a very conservative approach to how we underwrite in the marketplace. Sticking to our principles around how we lend to customers and really focusing on a strong balance sheet, capital and liquidity makes us well positioned to ride out a difficult economic environment. I think it's easy for financial services

firms to get lured away from that in the boom times and to come to regret it in the down times.

Which technologies are currently causin the biggest impact on Capital One's business? I would say analytics. There's a demand (to) use information to make better decisions about marketing and [about] the products we develop to improve credit underwriting decisions and servicing decisions. That's a theme in the financial services industry: the innovation cycle time has sped up. Technology needs to support that because customer expectations have gone up dramatically, in large part driven by the Internet.

How can you assure customers that their online data is safe? I'm sure there will always be a set of customers who don't want to operate online because of those security concerns, but I think that will diminish over time Customers want to pay their bills online, they want to get their statements

electronically - and we're providing those capabilities. We're very sensitive to what happens when there's a data breach and the reputation impact - or even potentially very serious financial impact - it can have on a company. We have Jinvested inl rigorous protection of our customers' information. including teams of people internally who are focused on how to defend against phishing attacks or any other kinds of electronic attacks against our site or network. Even with the news about security [breaches], there is a

services. Has the popularity of the iPhone and other mobile devices put new IT demands on your business? Yes, it has. There is no question that mobile banking solutions are becoming a table-stakes thing. There are a lot of different ways to deliver mobile solutions, and I think we have some pretty cool things we're working on that have the opportunity to create some differentiation there. Mobile is going to be such an important platform for us. It's a ubiquitous platform today, but it's driven by gen-

huge demand and uptake for online

erational changes. The comfort that younger generations have today with

doing transactions over mobile devices is just going to make this pressure grow over time for us.

How is Capital One responding to new storage demands created by the explosi of data? Disaster recovery and the need to do data replication has really driven changes in our need for data storage. For example, we recently put in place a new online servicing platform that has dramatically different storage needs than the previous system. We have different data-retention requirements for different types of data, and we're tackling this head-on. We have an initiative internally where we're trying to look at our whole storage footprint and understand how we can really ontimize that to reduce cost and be more efficient.

How important is IT innovation to your business? Innovation for us is critical. For financial services, our product is IT, in a way. It's an intangible product that we deliver through IT solutions. Yes, there's a whole relationship and personal component part of it, particularly in branch and commercial banking. But a lot of

what we do is all about technology. Recently, I was on my California tour where I visited a bunch of major technology players. Essentially, with each of them I said. "Tell me about your strategy, where you're going and

some of your developments. At Capital One, we have an advanced technology group whose job is to look at some of these cutting-edge technologies [and] pilot some of those things so we can introduce ideas to the business.

How will Capital One interact with customers in a Web 2.0 world? When it comes to Web 2.0 technologies and things like Facebook and new collaboration tools, we're really excited about those in terms of helping to spur innovation within Capital One about things we can offer to customers online, and also [in terms of] the opportunity to create

some breakthroughs in productivity and the connectedness of people to the enterprise. It's an important opportunity for us, and we're pushing hard to determine how we can deploy some of these technologies internally.

- Interview by Brian Fonseca

Sharon Machlis

Will Your Vote Count Tomorrow?

HAT'S INTUITIVE and simple for a system designer isn't necessarily easy and obvious for a cross-section of system users. Which brings us to tomorrow's election.

Even if you believe that voting machines are tamperproof and that any "honest" computer tabulation errors won't affect the final results (making you more of an optimist than I am), there's another concern: Are systems easy enough to use so that anyone - and I mean anyone - can operate them properly? How about harried parents in a hurry or people who are intimidated by technology?

In 2000, the answer was no. Florida's hanging chads showed that even a simple punch-card system can be poorly designed, since many voters didn't push their choices all the way through.

Even worse was the butterfly ballot in Palm Beach County, where thousands of votes were cast erroneously because of a confusing design. The irony is that the county decided on a two-page ballot design to make it easier for elderly voters by providing enough space for larger print.

However, thousands ended up selecting more than one candidate for president because they

couldn't tell where the choices lined up. Had there been preelection user-interface tests with random voters, feedback may have prompted election officials to redesign the ballot.

How important would that have been? After the election, The Palm Beach Post concluded that Al Gore lost more than 6 600 votes in the county because of voters who chose both Gore and Pat Buchanan for president. Official

election results say George W. Bush won Florida and thus the presidency - by just 537 votes. Lesson: Any system should undergo rigorous

testing by a cross-section of people who are likely to use it - not only by the people involved in designing it. That's especially true

when the system involved is electronic. Already, in early vot-

Already, in early voting, there have been several complaints.

ing this year, there have been several complaints that touch screens inaccurately recorded votes. Two West Virginia voters told Computerworld that they touched the screen for one candidate but the machine switched the selection to

another.

An election official speculated that the problem could be caused by unintentionally rolling a finger across the screen. In any case, the machines were recalibrated, and it appears that no more voters complained there. However. whether the problem was malfunctioning machines or user error, it's a serious issue if voters are unable to

easily register their intent. It's not OK to blame user error. If a task isn't as easy as filling in circles on a paper ballot, it's time to reexamine the system.

The key here is "easy." The Jackson Daily Progress in Texas recently published instructions for Cherokee County's Hart InterCivic touch-screen systems. They included multiple steps, like select-

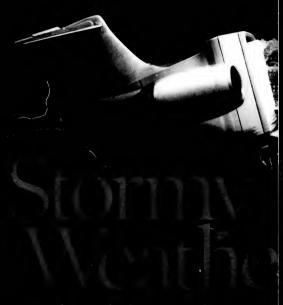


ing a language, entering a four-digit access code. moving a wheel to highlight a choice, selecting "enter," then reviewing a ballot summary screen. then ... Sorry but you shouldn't need an instruc-

tion sheet to cast a vote. So how will we know if there are problems with voting systems tomorrow? In many other parts of the world, experts consider a difference between exit polls and announced results a strong signal that something is amiss. (Unlike pre-election polling, exit polls don't ask people their opinions or how they expect to vote: they ask actual voters which candidate they picked.)

In Florida in 2000, exit polls calling the state for the Democrats may very well have accurately measured that a majority of voters thought they cast their votes for Gore.

Discrepancies between exit polls and results may not be able to determine whether the issue is malicious backing, honest tabulation errors, system malfunctions or users selecting a different candidate than they intended due to poor system design. But imperfect as such postelection comparisons may be, they're as close to an independent nationwide system audit as we're likely to get for the 2008 results. Sharen Machille is the managing editor of Computerworld.com. You can reach her at sharon machlis@ computerworld.com.



Users hit turbulence on the trip to



WHEN THE COMPUTER INDUSTRY buys into a buzzword, it's like getting a pop song stuck in your head. It's all you hear. Worse, the same half-dozen questions about the hyped trend are incessantly paraded out, with responses that succeed mainly in revealing how poorly understood the buzzword ac-

These days, the hottest buzzphrase is "cloud computing," and for John Willis, a systems management consultant and author of an IT management and cloud blog, the most annoying question is this: Will enterprises embrace this style of computing?

"It's not a binary question," he asserts. "There will be things for the enterprise that will completely make sense and things that won't."

The better question, he says, is whether you understand the various offerings and architectures that fit under that umbrella term, the scenarios where one or more of those offerings would work, and the benefits and downsides of using them.

Even cloud users and proponents don't always recognize the downsides and thus don't prepare for what could go wrong, says Dave Methvin, chief technology officer at PC Pitstop LLC, which uses Amazon.com Inc's S3 cloud-based storage system and Google Apps. "They're trusting in the cloud too much and don't realize what the implications are," he says.

With that as prologue, here are seven turbulent areas where current and potential users of cloud computing need to be particularly wary.

COSTS, PART I: CLOUD INFRASTRUCTURE PROVIDERS

PROVIDENS
When Brad Jefferson first
founded Animoto Productions, a
Web service that enables people
to turn images and music into
high-production video, he chose
a Web hosting provider for the
company's processing needs.
Looking out over the horizon,
however, Jefferson could see that
the provider wouldn't be able to
meet anticioused oeak process-

ing requirements.

But rather than investing in in-house servers and staff, leffer on turned to Amazon's Elastic Compute Cloud, a Web service known as EC2 that provides resizable computing capacity in the cloud, and RightScale Inc., which provides system management for users of Web-based services such as EC2. With EC2, companies pay only for the server capacity they use, and they obtain Continued on page 36

cloud computing. By Mary Brandel





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COVER STORY

Continued from page 23

and configure capacity over the Web.
"This is a capital-intensive busi-

In is is a capital-intensive oustness," Jefferson said in a recent podcast interview with Willis. "We could either go the venture capital route and give away a lot of equity or go to Amazon and pay by the drink."

His decision was validated in April, when usage spiked from 50 EC2 servers to 5,000 in one week. Jefferson says he never could have anticipated such needs. Even if he had, it would have cost millions to build the type of infrastructure that could have handled that spike. And investing in that infrastructure would have been overkill, since that capacity isn't needed all the time,

he says. But paying by the drink might make less economic sense once an application is used as a consistent level, Willis says. In fact, Jefferson says he might consider a hybrid approach when he gets a better sense of Animoto's usage patterns. In-house servers could take care of Animoto's ongoing, persion requirements, and anything over that could be handled by the cloud.

COSTS, PART II: CLOUD STORAGE PROVIDERS

Storage in the cloud is another hot topic, but it's important to closely evaluate the costs, says George Crump, founder of Storage Switzerland LLC, an analyst firm that focuses on the virtualization and storage marketplaces.

At about 25 cents per gigapyte per Mr about 25 cents per gigapyte per mook like a huge bargain, Crump says. But although Crump is a proponent of cloud storage, the current cost models don't reflect how storage really works, be says. That's because traditional internal storage systems are designed to reduce storage costs over the life of the

Cirrus or Cumulous?

There are various styles of cloud computing offerings.

This is how cloud experts are computing comparising they

SOFTWARE AS A SERVICE (SAAS)
Description: Special purpose software made evaluable by a Shird party over the Internet, with a usage-based pricing model.
Some call it "applications as a service."
Examples: Salesforce.com,

Description: An integrated softwar onment for which systems administ and developers can build, test and di austom applications. BREASTRUCTURE AS A SERVICE (SAAS)
Description: A service that provides the core computing resources and network fabric for the classifications.

tor the cloud deployment.
Examples: Amazon's Elastic Compute
Cloud, Rackspace Hosting's Mosso service

DEE CLOUD SERVICES

REAFIFIER: Stand-alone components built

aloud platforms that can be woven into

oud applications, such as billing, systems magement and storage. samples: Amazon's S3, Microsoft BizYalk stylcss, RightScale

MINCES AGBERT ANDERSON, CHIEF TECHNOLOGY OFFICER, DISPEDE TECHNOLOGIES LLC,

data by moving older and less-accessed data to less-expensive media, such as slower disk, tape or optical systems. But today, cloud companies essentially charge the same amount "from Day One to Day 700." Crumo saws.

Amazon's formula for calculating monthly rates for its S3 cloud storage service is based on the amount of data being stored, the number of access requests made and the number of data transfers, according to Methvin. The more you do, the more you pay.

Crump says that with the constant decline of storage media costs, it's not economical to store data in the cloud over a long period of time.

Cloud storage vendors need to create a different pricing model, he says. One idea is to move data that hasn't been accessed in, say, six months to a slower form of media and charge less for this storage. Users would also need to agree to lower service levels on the older data. "They might charge you 2200 for 646 the first year; and the next year, instead of your having to buy more storage, they'd ash permission to archive 320 of the data and continue 320 of the data and some storage with the storage of the stora

To further drive down their own costs and users' monthly fees, providers could store older data on systems that can power down or off when not in use. Crump says.

SUDDEN CODE CHANGES

With cloud computing, companies have little to no control over when an application service provider decides to make a code change. This can wreak havoc when the code isn't thoroughly tested and doesn't work with all browsers. That's what happened to users of Los Angeles-based SiteMeter Inc.'s Web traffic analysis system this

summer. SiteMeter is a software-as-a-servicebased (SaaS) operation that offers an

We could either go the venture capital route and give away a lot of equity or go to Amazon and pay by the drink.

application that works by injecting scripts into the HTML code of Web pages that users want tracked. In July, the company released code that caused some problems. Any visitor using Internet Explorer to view Web pages with embedded SiteMeter code got an error message. When users began to complain, Web site owners weren't immediately sure where the problem was

"If it were your own company pushing out live code and a problem occurred, you'd make the connection," Methvin explains. "But in this situation, the people using the cloud service started having users complaining, and it was a couple of hours later when they said, Maybe it's SiteMeter.' And sure enough, when they took the code out, it stopped happening."

The problem with the new code was greatly magnified because something had changed in the cloud without the users' knowledge. There was no clear audit trail that the average user of SiteMeter could see and say, 'Ah, they updated the code,' "Methvin says.

updated the Code, "scenario says."
Soon after, SiteMeter unexpectedly upgraded its system, quickly drawing the ire of users such as Michael van der Galien, editor of PoliGazette, a Web-based news and opinion site. The new version was "frustratingly slow and impractical," van der Galien says on his blog.

In addition, he says, current users had to provide a special code to reactivate their accounts, which caused additional frustration. Negative reaction was so immediate and intense that SiteMeter quickly retreated to its system, much to the relief of van der Gallen and bundreds of other users.

"Imagine Microsoft saying. 'As of this date, Word 2003 will cease to exist, and we'll be switching to 2007," Methvin says. "Users would all get confused and swamp the help desk, and that's kind of what happened."

Over time, he says, companies such as SiteMeter will learn to use beta programs, announce changes in advance, run systems in parallel and take other measures when making changes. Meanwhile, let the buyer beware.

SERVICE DISRUPTIONS

Given the much-discussed outages of Amazon's S3. Google's Gmail and Ap-



ple's MobileMe, it's clear that cloud users need to prepare for service disruptions. For starters, they should demand that service providers notify them of current and even potential outages.

"You don't want to be caught by surprise," says Methvin, who uses both S3 and Gmail. Some vendors have relied on passive notification approaches, such as their own blogs, he says, but

they're becoming more proactive. For example, some vendors are providing a status page where users can monitor problems or subscribe to RSS feeds or cell phone alerts than notify them when there's trouble. "If there's a problem, the cloud service should give

you feedback as to what's wrong and how to fix it," Methvin says.

Users should also create contingeory plans with outages in mind. At PC Pitstop, for instance, an S3 outage would mean users couldn't purchase products on its site, since it relies on cloud storage for downloads. That's why Methvin created a fallback option. If S3 goes down, products can be downloaded from the company's own servers.

Servers.
PC Pitstop doesn't have a backup plan for Google Apps, but Methvin reasons that with all of its resources, Google would be able to get a system such as e-mail up and running more quickly than his own staffers could if they had to manage a complex system like Microsoft Exchange. "You lose a little bit of control, but it's not necessarily the kind of control you want to have." he says."

Overall, it's important to understand your vendor's fall-over strategy and develop one for yourself. For instance, Palo Aito Software Inc. offers a cloudbased e-mail system that uses a caching strategy to enable continuous use during an outage. Called Email Center Pro, the system relies on \$3 for primary storage, but it's designed so that if \$3 goes down, users can still view locally cached cooles of recent e-mails.

Formative Research Inc. advises customers to ask whether the cloud service provider has geographically dispersed redundancy built into its architecture and how long it would take to get service running on backup. Others advise prospective users to discuss and arrange for outsige compensation. Many wendors reimburne customers and arrange for outsige compensation. Many wendors reimburne customers for lost service. Amazon.com, for example, applies a 10% credit if \$3 availability dips below 959% in a move 959% in a move 959% in a move of the province of th



The reality is that most of the companies operating these services are not nearly as experienced as we hoped they would be.

COVER STORY

VENDOR EXPERTISE

One of the biggest enticements of cloud computing is the promise of IT without the IT staff. However, veteran cloud users are adamant that this is not what you get. In fact, since many cloud veters are excompanies, their expertise—especially with enterprise-level needs—can be thin, says Rene Bouranic, senior vice president at Serena Software Inc. It's essential to supplement providers' skills with those supplement providers' skills with those

of your own in-house staff, he adds.
"The reality is that most of the companies operating these services are not nearly as experienced as we hoped

they would be," Bonvanie says.

The inexperience shows up in application stability, especially when users need to integrate applications for functions like cross-application customer

reporting, he says.

Serena itself provides a cloud-based application life-cycle management system, and it has decided to run most of its own business in the cloud as well.

It uses a suite of office productivity applications from Google, a marketing sutomation application from Marketing sutomation application from Marketing through and on-demand billing system from Aria Systems Inc. So far, it has pushed its sales and marketing automation, payroll, intranet management, collaboration software and content management systems to the cloud. The only noncloud application is SAP, for which Serena outsourced management to an offstore firm.

According to Bonvanie, "the elimination of labor associated with cloud computing is greatly exaggerated."

The onus is still on the cloud consumer when it comes to integration. "Not only are you dealing with more moving parts, but they're not always as stable as you might think," he says.

"Today, there's no complete suite of SaaS applications, no equivalent of Oracle or R/3, and I don't think there ever will be," Bonvanie says. "Therefore, we in IT get a few more things pushed to us that are, quite honestly, not trivial."

GLOBAL CONCERNS

Cloud vendors today have a U.S.centric view of providing services, and they need to adjust to the responsetime needs of users around the world, says Reuven Cohen, founder and chief

Cloud in the Enterprise

What are the agreet and future mage levels



Servey perfolpents chemicitated cultient and faters unage – on a scale from 1 (mans) to 5 (interpretation and a at a variety of 17 diesd services within floir organizations. The chart shows the personness of registeration

technologist at Enomaly Inc., a cloud infrastructure provider. This means ensuring that the application performs as well for users in, say, London as it does for those in Cincinnati.

Bonvanie agrees. Some cloud vendors "forget that we're more distributed than they are," he says.

For instance, San Bruno, Califi-based, Market Bright's Loud-hased marketing application works great for Scena's marketing department in Redwood, City, Calif, but performance diminished when personnel in Australia and India began using it. "People should investigate whether the vendor has optimized the application to work well around the work?", Bonyanie says. "Don't just do an evaluation a few miles from whether the hardwares is s."

Worldwide optimization can be accomplished either by situating servers globally or by relying on a Web application acceleration service, also called a content delivery network, such as that of Akamai Technologies Inc. These systems work across the Internet to improve performance, scalability and cost efficiency for uses the service of the content of the service of service serv

Of course, situating servers globally can raise thorny geopolitical issues. Willis points out. Although it would be great to be able to load-balance application servers on demand in the Pacific Rim, Russia, China or Australia, the industry 'isn't even close to that yet,' he says. "We haven't even started that whole expoolitical discussion;"

In fact, Cohen points out, some users outside of the U.S. are wary of hosting data on servers In this country. They cite the USA Patriot Act, which inet of numera recurrent concerne means room creases the ability of law enforcement agencies to search telephone, e-mail communications, medical and financial records and eases restrictions on foreign-intelligence-gathering within the U.S. The Canadian government, for instance, prohibits the export of certain personal data to the U.S.

"It's hazy and not well defined,"
Cohen says of the act. "People wonder,
'Can they just go in and take (the data)
at a moment's notice, with no notification beforehand? That's a whole second set of problems to be addressed."

NON-NATIVE APPLICATIONS Some applications offered on SaaS

platforms were originally designed for Sas5; others were rebuilt to work that way. For example, Bouranie says, there's a very big difference between applications like WebEx and Salesforce.com, which were designed as Sas5 offerings, and Aria's billing platform, which was not.

"it's highly complex and fits in the cloud, but its origins are not cloud-based," he says. "If the offering was not born [in] but moved to the cloud, you deal with a different set of restrictions as far as how you can change it."

Whatever "cloud computing" is to you — an annoying buzzphrase or a vehicle that might power your company into the future — it's essential to get to know what it really means, how it fits into your computing architecture and what storms you may encounter en route to the cloud.

8

Brandel is a Computerworld contributing writer in Newton, Mass. Contact her at marybrandel@verizon.net.



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a soonly management



Top IT luminaries demand action from the next administration. By Gary Anthes

HE CURRENT economic turmoil obscures a long-term problem that may shape the future of America long after the present crisis is over. By most measures, the

U.S. is in a decade-long decline in global technological competitiveness. The reasons are many and complex, but central among them is the country's retreat from long-term basic research in science and technology.

Presidential candidates

John McCain and Barack Obama have expressed few personal views about science and technology, but they have outlined some broad policy proposals and goals, and both have outlined educational reforms that they say will make the U.S. more competitive in science and technology.

Computerworld asked nine high-tech luminaries to offer their advice to the next U.S. president. Their answers appear below, in their own words. These comments represent the views of the individuals and not necessarily those of their employers.

VINTON CERE Google Inc.; Internet pic

We must take a

global leadership role

on energy and global warming. We should: 1. Focus

our national R&D capacity on developing renewable energy at costs competitive with coal. Continued on page 32

Don't Let the Economic Crisis Become an IT Crisis

Keeping systems up and running through tough financial times

t's a time of dire predictions, gloomy forecasts and slashed budgets. But because companies must survive, it's also a time of doing everything possible to patch systems together and keep them running System demand has never been higher, and because of the financial crunch, so has the necessity to "make do with what you've got." Those new servers will have to wait until next quarter, Those old workstations are going to have to hold up. Software upgrades, unless already covered, will also have to wait. It's a true test of an IT crew, kind of like

a battleship's crew in combat Your company is heavily dependent on the performance you provide them. Any system downtime for any reason means lost time and profit. The same can be said for slow performancethe longer it takes to get something done the longer a customer has to wait the more possibility of being cut off by the competition or angering a customer so they go someplace else.

Fragmentation Robs Production and

File fragmentation is a key factor that cripples system performance and threatens reliability all across the enterprise. It causes system slowdowns resulting in lost production and help desk calls. It also allows for hard drive lives that can be shortened by 50 percent, due to the excessive I/O activity to retrieve fragmented files.

We constantly had servers running slowly and getting really fragmented from constant file access," said lim Bernal, Senior Network Engineer with Howe, Barnes, Hoefer & Arnett in Chicago, Illinois, "Over time file access would almost halt or take minutes to access a file. We also had problems with users logging in with domain controllers sometimes rejecting users because of timeouts in communicating with our DNS servers."

Scheduled defragmentationincluding the "free" offering-doesn't actually solve the problem. Time windows in which to schedule defrag have become less and less, thanks to escalating 24X7 server operation at many companies. In between the scheduled



runs that do occur, fragmentation continues to build and impact performance. And scheduled defrae also causes its own cost overrun: the valuable IT time required to analyze and schedule defragmentation for each drive

The Small Investment

with Huge ROI

The one investment that pays for itself many times over in restored performance and hardware life is Diskeeper with InvisiTasking. Once installed, Diskeeper invisibly and automatically maintains performance from that day forward. Performance is consistently maximized. there is never a negative performance hit from defrag, and scheduling is never required.

"Since implementing Diskeeper on our servers and workstations, we've improved system performance tenfold." said Mike Ciccarone, IT Coordinator with Town of Fountain Hills, Fountain Hills, Arizona, "The automatic defragmentation jobs not only improve system efficiency but the effectiveness of our limited Information Technology staff. We now have time to perform other necessary tasks to help support our users and to roll out new services."

With Diskeeper, our servers have been up almost 99% of the time with no downtime, except to install updates from Microsoft or when a server reboot was necessary," said Bernal, "And file access is lightning fast."

Keeping Econom

Troubles Out of IT

Don't let the economic crists become an IT crisis. Put Diskeeper® 2008 with InvisiTasking® technology to work in your company-and put performance and reliability problems behind you.

66 With fragmentation exerting such a severe toll on system performance, It's quite likely that many organizations have initiated hardware upgrades unnecessarily. By using an enterprise defragmentation utility, it is possible to achieve performance gains that meet or exceed many hardware upgrades. From a cost standpoint alone, this is an attractive proposition, 77

IDC WHITE PAPER. REDUCING DOWNTIME AND REACTIVE MAINTENANCE: THE ROLOF DEFRAGMENTING

THE WINDOWS ENTERPRISE

"I think you can do the math on how much we saved on not having to buy new machines not to mention the manpower I did not have to use constantly working on the machines," said Derik A. Hammond, IT Operations Supervisor with L-3 Photonics in Carlsbad, California. "The savings to the programs and my stress level cannot be measured. It even looks like some of the machines will actually get close to a four year life span due to Diskeeper

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GOVERNMENT

Continued from page 30

2. Continue work on clean coal and restart nuclear power development.

3. Regin a major campaign for reduction in fossil fuel consumption: 100 mpg hybrids and all-electric transportation

4. Charge DARPA with development of new, lightweight, strong materials for automobile, aircraft and spacecraft hodies.

5. Initiate a crash program to analyze the effects of global warming on coastal regions and prepare responses. 6. Increase funding for

weather data collection. analysis and prediction to cope with effects of global warming. 7. Develop a new K-12

educational program for science, technology, engineering and mathematics. 8. Make permanent the

R&D tay credit and initiate a credit for use of renewable

energy. 8. Strengthen the SEC and

revisit banking regulations to prevent a repeat of the subprime mortgage and de-

rivative security disaster. 10. Prepare for the massive wave of retiring baby boomers in the decade ahead.

HENRY CHESRROUGH

Adjunct professor and execu e director, Center for Open wation, Haas School of s. University of California, Barkeley



tion must be at the forefront of economic policies in [the new] administra. tion, Inno-

vation is widely distributed around the world, so policies must promote the division

of innovation labor. These include support for start-ups and small businesses Universities and national labs must be allowed to engage with industry on translating research results into commercial products. Markets for the sale and resale of intellectual property must be supported. Open initiatives

must be promoted, especially

where government can help

set industry standards. More money must be appropriated for basic research. Ph.D. graduates should receive green cards to allow them to stay in the U.S. H-1B visas should be expanded. The R&D tax credit should be made permanent. And a new initiative in alternative energy led by the government - but involving universities, industry, venture capitalists, nonprofits and research labs - should be started immediately.

-----JUDY ESTRIN CEO, JLabs LLC: author of Closing the Innovation Gap



The nation faces major challenges --- energy independence and climate change. national se-

curity, and the need for affordable, quality health care - that threaten our future. Each of these challenges also brings opportunities, if we give innovation the attention it deserves.

One of the most crucial roles of the next administration will be to foster the

The terra firma for IT vertigo.

right environment for innovation through wise funding and smart policy. But it must also re-energize the nation by embracing these challenges, providing a vision to inspire and engage the country at large, and bring out the innovator in each of us.

DAVID FARBER Professor of com

ence, Carnegie Mellon Univ sity: former chief technologist.



FCC I propose that a new president re-establish the dent's In-

formation Technology Advisory Committee. This, combined with a strong science/technology adviser to the president,

would provide the White House with much-needed help in technology policy. There are agencies that

regulate aspects of IT, such or the Federal Communications Commission Resestable lishing the position of chief technologist as a permanent position [and establishing] a bureau that would attract technologists to join the agency would bring to the policymaking activities tech-

nical input and understanding missing these past years. The establishment of an organization that has the staff and charter to advise the Congress can be critical in the formulation of realistic laws that impact IT. Such capability is missing now.

and our laws show it. Finally, it is essential to get our brightest young scientists and technologists to intern in Washington. The benefits

to the nation and to the young future leaders will be enormous and long-lasting.

ROBERT KAHN CEO of the Corporation for nal Research Initiatives: not ploneer and former DARPA program s



National security and economic growth are closely coupled, and our engine of

economic growth depends on an educated workforce and advances in technology. Many of the greatest

challenges we face in our cities, and with our globally interconnected world, are increasingly dependent on engineering talent that knows

how to apply science and technology to solving real problems. In difficult times. when multiple near-term priorities draw heavily on limited recourses it is all too easy to curtail research investments and associated technology development. This would likely shortchange our future generations. The next president should firmly resist that possibility.

LEONARD KLEINROCK Professor of computer science, University of California, Los Angeles: Internet pioneer When it



comes to science and technology, we still eniov a leadership position. But we are in se-

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Where the Candidates Stand

Sen Barack Ohama says administrations in American history to one that

ible federal funding 10 years, to appoint the nation's first chief tech gy officer, to make the R&D tax credit for ised on the best-available, scientifically valid evidence and not on the ideological predisposior political appointees Sen. John McCain has not said directly what he might do about the leve of federal spending on friendly policies aimed at the private sector through densome regulations he'd make the R&D tax its R&O workers, and that

he'd allow companies to

rious danger of losing that position due to the shortsighted view of some of our key government funding agencies.

What used to be their willingness to support long term, high-risk, high-payoff, well-funded and visionary research has been replaced with a focus on short-term, lowrisk, low-payoff, poorly funded and pragmatic objectives. This is not only damaging our ability to win in today's competitive environment. but it is also channeling the next generation of faculty and senior researchers into small science, incremental thinking and short-term goals.

I urge the next president to return to the generous government funding of long-term advanced and innovative research projects for our universities and research centers.

RICK RASHID or vice president, Microit Research; former professor of computer science, Carnesia Melian University

Increas-

ing use of

noncom-

funding:

short-

petitive



tion in the world

term missionfocused investment; and insufficient funding for long-term and risk-taking research threaten America's economic future and posi-

My advice to a new administration is to work toward restoring a balanced system of support for longterm basic research in science and technology.

Specifically, I would recommend that it work with Congress to eliminate or limit earmark funding for science, restore the "longterm risk-taking" parts of DARPA to its 1970s/1980s form, and fund the American Competitiveness Initiative.

ED LAZOWSKA

Professor of computer s and engineering, University of hington, Seattle; former chairman of the President's IT ory Committee 1. Restore



that federal policy benefit from the most complete, accurate and honest scientific and technological information available. The

current administration has stacked scientific advisory boards, suppressed research that conflicts with its political agenda, prevented government scientists from speaking openly with the public and the media, failed to utilize the best available evidence to guide policy, and generally denigrated science. evidence and objectivity

2. Double, over a 10earmarked year period, the federal investment in fundamental research by key science agencies. Essentially every aspect of IT upon which we rely today traces its roots to federally sponsored research. The current administration has decreased federal support for fundamental research in all fields

> 3. Make a national commitment to science education at all levels - K-12, undergraduate, graduate and retraining. Nothing is more important than the education of the next generation.

America is losing ground. 4. Make the R&D tax credit permanent. 5. Use technology to

address these "grand challenges" of the 21st century: achieving energy independence; addressing climate change: feeding the people of America and the world: enhancing national security: further improving human health, life expectancy and quality of life; restoring and improving our urban infrastructure; protecting our environment. Each is critical; none is optional. Each requires major new advances in science and technology.

VICTOR 711F Director of the MIT Comp ce and Artificial Intellience Laboratory; advisor to the U.S. Department of De-fense and the National Scie



At a time of worldwide economic. geopolitical and social challenges. the next president

must ensure our continuing preeminence in IT and comnuter science Historically revolutionary achievements - the Internet, mobile communication, parallel computing, graphical user interfaces - typically originated from university research and often took more than a decade to realize a \$1 billion market.

Therefore, the administration must significantly increase its budget for long term, fundamental research, e.g., by doubling the NSF budget annually for the next four years. We must invest in educating the next generation of IT and computer science professionals. This will require introducing courses in high school and ensuring that those who would like to

enter the field can afford it.

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Mobile Workforce 2.0

Rugged ultramobile PCs bring more features and better connections. By Matt Hamblen



The Panasonic Toughbook U1 comes with a solid-state drive, 16B of memory and the letel Atom Processor 2526. It's rated to survive a four-foot drop and Issa a sealed, all-weather design. It also features integrated Wi-Fi, a backlit (WERTY keybeard, USS and SD card slots, and a 5.6-in. WSVM auxiliative inventable touch screen.

OR YEARS, businesses have been deploying mobile software to help workers communicate wirelessly with back-office applications while on field service calls or sales visite.

or sales visits.

Now, wireless mobility is entering a new era with more capabilities. For example, GPS-enabled devices have been made more powerful with richer middleware and synchronization software.

synchronization software. At air conditioning giant Carrier Corp. in Farmington, Conn., about 1,600 service technicians throughout. North America have been equipped with wireless handhelds for several years. The technicians receive dispatch data for service calls and notify dispatchers when they have finished a job. But Michael Hawman

has bigger plans. "Now, we want to move to the second generation," says Hawman, CIO of building systems and services at Carrier.

He wants newer devices that can capture data on a technician's work, including readings from heating and air conditioning units and the models and serial numbers of new parts installed.

new parts installed.
Hawman would also
like customer signatures to be
captured electronically and
transmitted to a back-office
application. And with GPS
capabilities in more devices.
Carrier may soon be able to
track technicians from the
handhelds they carry rather
than from separate devices
on their trucks, be says.

Those are just a few of the advanced capabilities of new rugged handheld devices and second-generation technology such as ultramobile PCs, which Carrier has been testing. The company is currently giving the Panasonic Toughbook Ul UIMP. at trial run. Previously, Carrier tried and rejected the ilPhone because the company found that it wasn't rugged enough for its service technicians, Hawman says.

HARDWARE AND SOFTWARE

Second-generation capabilities are enhanced by more sophisticated software and newer hardware, Hawman notes. For example, a software-as-a-service (SaaS) contract with Antenna Software Inc. will link bacioffice applications for accounting and inventory and provide GPS as well.

Antenna's service is especially valuable to Carrier because it provides tools that link to a number of Carrier's applications as well as to more standard Web applications. The company won't say exactly how much it's spending on Antenna's services or on hardware, but Hawman notes that Carrier has invested millions of dollars in its mobile strategy and as a result has seen a large increase in productivity.

"Our mobility strategy is a key strategy for us as we improve the customer experience," he says.

Antenna recently an-

Man La Communication of the co

nounced several improvements to its Antenna Mobility Platform with the release of AMP 2.0. They include the ability to quickly configure mobile connections to back-office applications and GPS, as well as a new mobile instant messaging application, according to Antenna.

Other improvements include AMP Studio 4,0 for building applications with components. AMP Component Library, AMP Doc-Share and support for the iPhone, says Antenna CEO Jim Hemmer. In all, Antenna can connect mobile workers with about 50 back-end systems, including Oracle databases and SAP software.

Hemmer says about 80% of Antenna's 125 customers use the SaaS model; the rest use Antenna tools in-house.

Many companies offer products and services to connect field workers to connect and workers to central offices wirelessly, and analysts say the benefits are real. But Gartner Inc. analyst Ken Dulancy said in a March research note that large firms still need to apply more strategic planning around mobile technolocy deloyments. B

What mad genius is behind this?



∷ BlackBerry Storm

i is mess to the world's first touch screen.
 ii just 3G Network.

veri onwireless

Getting It All 'Virtually' Right

IT's implementation of **virtualization** was **flawed**, but the worst problems can be remediated.

HE RESULTS from our server virtualization assessment are back, and we failed miserably. There were a few bright spots, but mostly our implementation was found wanting. Fortunately, our mistakes can be remediated.

The report included more than a dozen findings, but I'll discuss only the most significant ones.

As I reported earlier, IT deployed a fairly significant VMware ESX implementation without telling me. When I found out, I called in a consultant to conduct an assessment.

His first finding concerned the VMware service consoles, which start up and administer the virtual machines associated with a single ESX server. Our engineers placed the IP addresses for the consoles on the same network used by the VMs. That's not good, since the consoles are the single point from which servers can be started and administered. Worse, administrators were sharing a single administrative account for the consoles. They should have known better, and I told them as much when I instructed them to create individual accounts.

I also had our network team create a new virtual LAN, and we created new IP addresses for the service consoles. Then we devised some firewall rules to control access. Our next concern was

VirtualCenter, which centrally manages all of the ESX servers. It allows administration of all the virtual servers from a single interface. The potential damage that a hacker could inflict if he had control of the VirtualCenter server is frightening to think of, but even more frightening is that it was

not properly patched. What's more, it was sitting on a VLAN along with some arbitrary servers. and there were insufficient controls for delineating administrative duties be-

■ The sysadmins should have known better, and I told them as much.

tween the help desk, which we outsource to India. and our Level 3 engineers at corporate headquarters in the U.S.

Another change of IP address was called for, and we placed the server on a different management VLAN, with the appropriate firewall rules to limit access. I also had the team update patches and create a process to ensure that the server would be patched on a more regular

basis than other servers. Less-critical findings included recommendations that we create warning banners, disable root

was properly access via Secure Shell (SSH) and use sudo for controlled administrative In addition, the team will

need to properly configure syslogd to send system logs to our syslog server: disable SSH Version 1, which is plagued with vulnerabilities; minimize the number of unneeded ser vices running on the ESX server, which is really just a stripped-down version of Red Hat Linux; and make some modifications to the kernel to prevent denial-of-

Trouble **Ticket**

TION PLAN: Defe

service attacks.

As for the assessment's positive findings, we didn't make the same storage mistakes a lot of companies do when implementing virtualization. The configuration of our storage network received a stellar report, which noted that we had implemented the proper LUN (logical unit number) zoning and masking to limit the storage that each virtual server can access.

We also got high marks for deploying Tripwire to monitor key configuration files to detect suspicious activity and ensure that the configuration of our ESX servers is in line with our policies.

Finally, the V Motion network, which coordinates the automatic moving of virtual servers from one

O JOH III ESX host to another if one fails, placed on a sepa-

rate VLAN. Our remediation plan is continuing, and I'll be making sure that it's completed in a timely

manner #

This week's journal is written by a real security man-ager, "Mathies Thurman." whose name and employer have been disguised for obvious reasons. Contact him at mathias thurman@ yahoo.com, or join the discussions in our security blogs: computerworld.com/ blogs/security.



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Because change happenz."

Beware Delusions in Good Times and Bad

ITH GLOOM DESCENDING on the global economy, it seems clear that we in IT will not be spared from the suffering of the financial meltdown. If history is any guide, we'll be in the vanguard of corporate cuts. When things get tough,

be in the vanguard of corporate cuts. When things get tough businesses rarely invest in efficiency, expansion or strategic

change. Instead, they cut contractors, projects and employees willy-nilly to husband cash and shore up short-term balance sheets. While these times can

white these times can be disturbing and scary, they also offer a good opportunity for reflection, and a chance to review our assumptions about our world, our work and how they all fit together. So while the storm is howling outside, maybe we should take a pipe cleaner to our brains.

Good times may lead us to some debusional thinking that leaves us vulnerable to mental and financial pain when the party's over. The first fallacy that many of us buy into during good times is that we're all geniuses. We become convinced that because things are going well, we actually know what we're doing. The world looks great, so we must be smart, right? And if we're intelligent and effective, then we deserve credit for all the

success. We are masters of the universe. We are the Promethean creators of technology, which begets value and wealth. If the stock of our company goes up, it must be the result of our beneficial actions.

And during good times, this is all fine. But it is delusional.

As soon as things begin

to go badly, we're not as eager to accept the blame as we were to take the credit. We look for extenuating circumstances, constraints beyond our control, systemic failures or any other excuses that might shield us from the harsh judement of reality.

The truth is that none of us is in complete control of either our successes or our failures. We live in an interdependent world and

■ While the storm is howling outside, maybe we should take a pipe cleaner to our brains. work in interdependent offices. Few of us are either geniuses or idiots. Most of us are ordinary mortals trying to do our best in the organizations in which we've landed. Likewise,

we've landed. Likewise, stock prices are not the omniscient wisdom of the universe expressed in numeric form. They are the result of the machinations of millions of global gamblers.

The problem with believing in our own power is that when it's revealed to be an illusion, we suffer shame and humiliation. Worse, we can succumb to the opposite delusion: that we are completely

While the first myth leads to mental anguish, the second can lead to financial ruin. When our salaries go up, we tend to believe that personal income is a function of our value to the company. We believe that our incomes are somehow a measure of our moral or financial virtue. And then we build a

powerless.



lifestyle that assumes that our virtue will never fail us. We take out mortgages, grow accustomed to luxuries. We think our companies pay us more because we're loved and respected.

Of course, there's nothing wrong with being loved and respected. And having a reasonable degree of self esteem is
no vice. But to believe
that money is an accurate
measure of one's value is
a dangerous idea. We live
in a market economy, and
what we're paid is largely
the result of supply, demand and regulation.

If in this downturn many of us are forced out of good-paying jobs and into jobs that pay less, does that mean that we're personal failhures? Or does it just mean that the forces of supply and demand for our labors have changed? How many of us are now hostage to mortgage debt, car loans and credit cards that we took on in the belief that incomes and value

Through the ups and downs of a career, it's best to stay firmly in touch with hard reality, even if it means giving up some of our pleasant illusions conjured during times of good fortune.

would only rise?

Paul Oten is the founder of the GeekLeaders.com Web community and author of the award-winning book Leading Geeks: How to Manage and Lead People Who Deliver Technology (Jossey-Bass, 2003). Contact thin at info@paulglen.com.

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Software Quality Assurance Analyst, Mr. Holy, NJ:Analyze test, troubleshoot applications coffware applications using QM

software applications using QA QA based tools in multipliciform environment. Utilize Visual Basic, Java to fine tune applications. Basely to Chandel Technologies.

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COMPUTERWORLD

SharkTank

Bin There, Done That it's a few years before the

creation of eBay, and this IT shop is upgrading one of its oldest machines with external tape drives. "in order to do this, we had to obtain a certain type of SCSI card that had stopped being made many years ago," says a pilot fish on the scene. "Our supplier managed to get the cards for \$35,000 in the back of a warehouse in Sweden. and they were the last of their type available. My colleague took delivery of them, and as his desk was a mess, he put them by the side of his desk." But next morning, the Interface cards are gone. A guick search doesn't turn them up,

trash bin with two boxes. The good news: The bin hasn't en emptied. The bad new The bin contains the parbage from a restaurant in the same building, so it's a little smelly. "Nobody wanted to explain to the boss what had hapnened and ask for another \$35.000," fish says. "My colleague was given a hard hat, some gloves and a flashlight, and he was lifted into the bin while I stood guard to ensure that the garbage truck did not stop by to empty the bin. After 45 minutes. he managed to retrieve the cards. For the rest of the day, nobody sat near him. He never left things on the floor next to his desk again."

ing a janitor headed to the

It's About Time

It's been two years, but sor of the machines in this IT shoo still haven't been adjusted to use the new daylight-saving time rules, "Management cannot justify the cost of replacing or upgrading the grumbles a sysadmin pilot fish responsible for the serv ers. "So we slog on with three weeks in the spring and one in the fall where some of the systems report the wrong time." And because it's that time of year, users complain to fish about several annoying time-stamp discrepancies - but as fish keeps explaining. this will only continue for a week, until the time change Thus it is that the boss complains at a staff meeting that the time stamp on a file is an hour off. Boss: "Why is this happening?" Fish explains for the 24th time, Boss; "I need you to fix this problem

Color-Coded

This pilot fish works on the help desk of a local hospital that offers network conn tions so patients and their families can connect to the internet "A nurse calls the bein desk to say that she needs an Internet cable," fish reports. "I grab a handful of cables of different sizes and head up there. When the nurse looks at the cables, she says, 'Oh - I have several cables like that already. But I thought only the purple ones worked. so I wanted you to bring some purple cables."

■ Cable Sharky with your own true tale of IT life at sharky@ computerworld.com. I'll send you a Shark shirt if I use it.

O MEED TO VENT YOUR SPLEENT Toss some chum into the rolling waters of Shark But Not therapeutod sharkball competer world.com O CHECK OUT Sharky's blog, browse the

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but someone mentions see-

Akamai Technologies Inc.	.2
Amazon.com/mc	lα
Antenna Software Inc.	. 3
Apple Inc.	. 2
Ana Systems Inc.	. 2
Brocade Communications Systems Inc	3
Caesars Palace Corp.	. J
Capital One Financial Com	
Corregie Molice University	13
Carrier Corp.	.3
Cisco Systems Inc.	
Clearwise Corp	
Computer Sciences Corp	
Corporation for	
National Research Inflatives	. 3
Delense Advanced Research	
Projects Agency	. 3
Delite	
Digipada Technologias LLC	
Enomaly Inc.	. 2
Federal Communications Commission	. 3
Forester Research Inc	2,2
Cortoer Inc	13
Google Inc	3
Hater Broup Co	!
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	HarterBright Inc	
	Medicare Australia	
	Microsoft Corp	
	WT	
	Motorpia Inc.	
	National Imaging Systems Inc	
	National Science Foundation	
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	Neusoft Group Ltd	
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	Oracia Corp	
	Overstock.com inc.	
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FRANKLY SPEAKING Frank Haves

What to Do

OUR BUDGET is about to be cut. Your IT shop faces a hiring freeze or layoffs. You can see a pep talk about "doing more with less" heading your way like an 18-wheeler barreling down a one-lane road. And you have no idea when things will start to get better. Does that about cover your situation?

Stop. Catch your breath. And get ready for the deluge. You already know your IT shop needs to become more visible to the rest of the husiness You know you'll have to work faster and be a closer and more valued partner than ever to vour users

What else should be on your to-do list - and the to-do lists of each person in your IT shop?

Glad you asked. Dive into a new technolon. Cloud computing is hot this week. So is virtualization. Linux, agile programming, encryption - face it, there are lots of technologies you don't know. Choose one and jump in. It doesn't have to be something jobrelated, just something to stretch your brain. Remind yourself of why you got into this game in the first place. It may be

again.

a while before you have time for much variety Find a corner you can cut. Look for efficiencies. Rethink your procedures. Streamline your habits. Remember, you're about to have less time to do more work. Fither you find ways to work faster or your days will get longer.

Choose an escape valve. You know you'll need one or your head will explode sometime before June. Maybe it's a game. a blog, a hobby, a meditation position. Whatever it is, have it ready so that when you just can't take it anymore, you'll be able to spend a few minutes escaping - and then go back to taking it.

Identify a need. What's not being done that would help users or IT? What's the cheapest way

■ Dive into a new technology, Choose an escape valve. Bury a hatchet. Cross a discipline. And stop to smell some roses.

to make that happen? Is there any way to measure the benefit? And how many people will want to, um heln take credit?

Soot a way to save money. It doesn't have to be big or ongoing, though that's a nice plus. But anything that will consume less manpower, attention. electricity, cooling or maintenance without reducing what IT delivers to users - that's likely to

be well received. Bury a hatchet, Maybe it's a user you can't stand. Or a peer who nurses an old grudge. Now's the time to clear the decks with an enemy. You don't

want the distraction of a needle match when the going gets tough. And if you can't actually resolve the problem, maybe you can cut a deal: For six months, you'll both pretend it's in the past. You can always go back to bating each other when happy days are back again.



Inventory your skills. If your current job suddenly becomes obsolete in an IT shop reorganization, you'll want to know in advance what you're good at. Don't just refresh your résumé - think about all of the things you can do. That's your guide to what you may be doing next.

Cross a discipline. A smaller staff means each staffer may have to do more things. If you're working in a silo, it's about to be demolished Look around What's the logical line for you to cross? And when the time comes, how will you

cross it?

Learn something new about your business. Not IT - the business your company is in. The more you know about how its products and services are conceived, engineered. produced, marketed, sold, accounted for and regulated, the more you can contribute to making the business work better with

technology. Stop to smell some reses. It really is going to get ugly. You'll have less time for the people, places and things you love. Don't wait. Enjoy them today. Frank Hayes is Computerworld's senior news columnist Contact him at frank haves@ computerworld.com.

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